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FIG.1

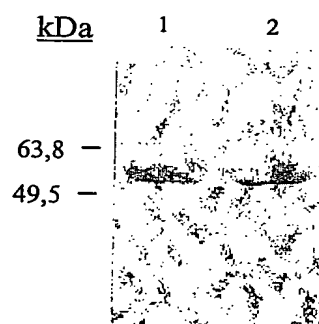
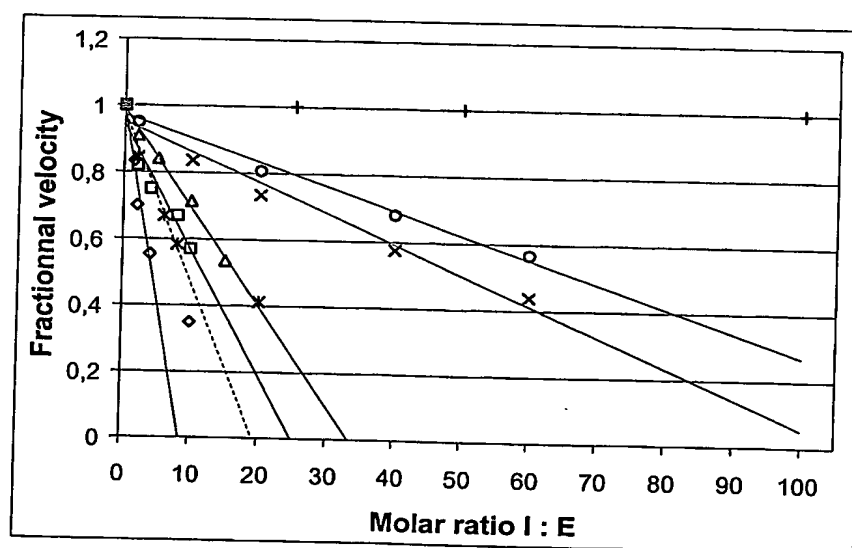


FIG.2



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FIG. 3

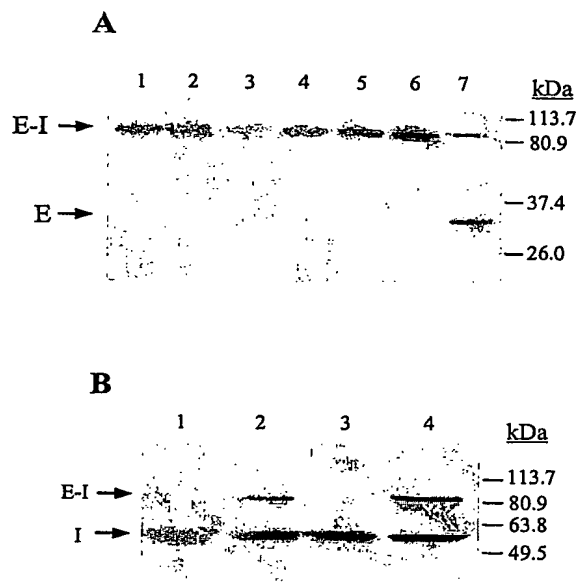
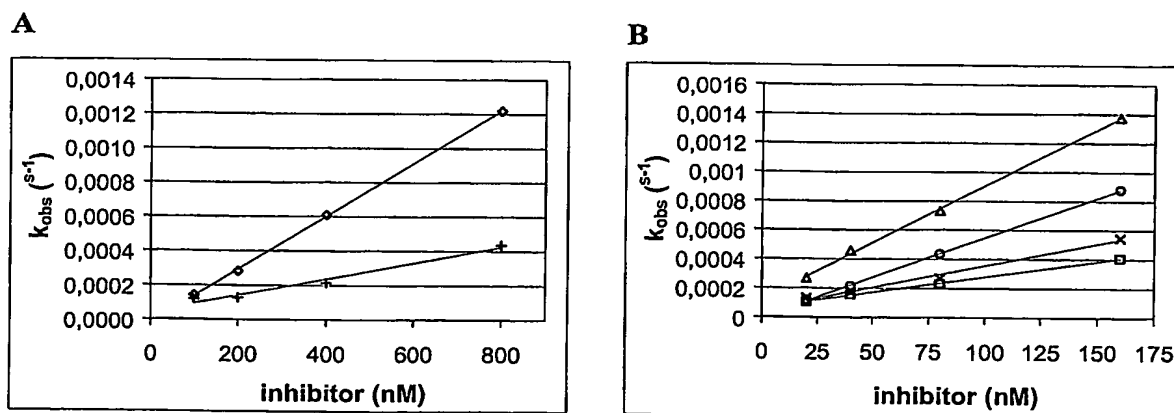


FIG. 4



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FIG. 5

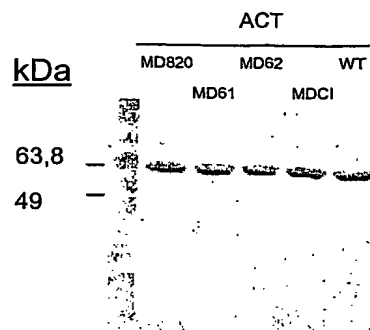
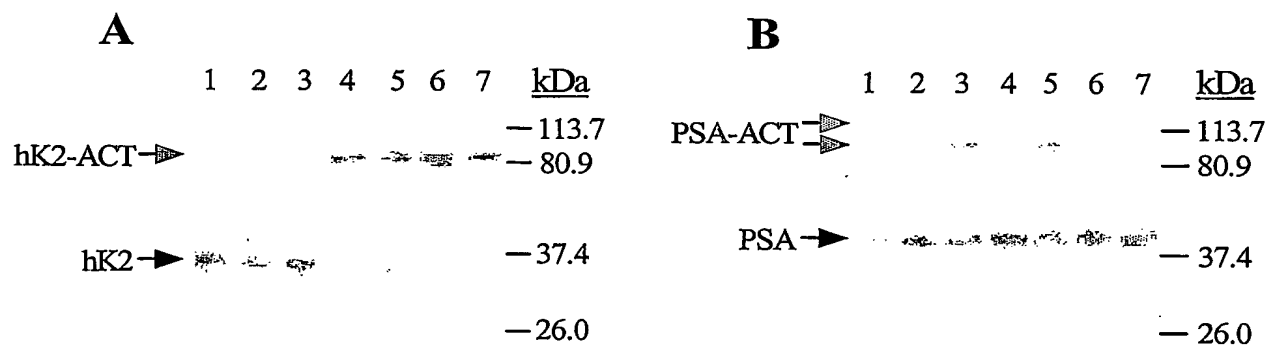


FIG. 6



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FIG. 7A

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variants : MD 820

SEQ ID N°1

*ATG*GAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACTTGACGAGGAGA
 ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
 GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTTGATAAGAATGTCATCTTC
 TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCCTGTCTCTGGGGGCCCATATAACCACCCTGA
 CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
 CTTCCAGCACCTCCTGCGCACCCCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
 GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
 ATGGCTCCGAGGCCTTTGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
 CTACGTGAAGAATGGAAGTAGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
 ATGATGGTCTGTTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
 ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
 GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGACCGTGGTGGAGCTGAAG
 TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
 CCATGCTGCTCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
 GCTCTACCTGCCAAAGTTTTTCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
 GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
 CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGGCACAGAAGCATCTGC
 TGCCACCGCGGTCAAATCACCCCTCCGTTCTCGAGCAGTGGAGACGCGTACCATTGTGCGTTTC
 AACAGGCCCTTCCTGATGATCATTTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
 TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variants : MD 820

SEQ ID N°2

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
 SPLSISTALAFSLSLGAHNNTLLEILKGLKFNLTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
 AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNNGTRGKITDLIKDLSQT
 MMVLVNYIFFKAKWEMPFPDQDTHQSRFYLSKKKWVMPMMSLHHLTIPIYFRDEELSCTVVELK
 YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDILLQL
 GIEEAFTSKADLSGITGARNLAVSQVVHKAVALDVFEEGTEASAATAVKITLRSRAVETRTIVRF
 NRPFLMIIVPTDTQNIFFMSKVTNPKQA*

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FIG. 7B

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 62

SEQ ID N°3

*ATG*GAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCCTGTCTCTGGGGGCCATAATACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTTCAAGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCCTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGAAG
CCATGCTGCTCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTTCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAATCACCAGGAGGTCTATCGATGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCCTGATGATCATTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variant : MD 62

SEQ ID N°4

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLSLGAHNNTLLEILKGLKFNLTETSEAEIHQS FQHLLRTL NQSSDELQLSMGN
AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNGTRGKITDLIKDLDSQT
MMVLVNYIFFKAKWEMPFPDQDTHQSRFYLSKKKWVMPMMSLHHLTIPYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDNDILLQL
GIEEAFTSKADLSGITGARNLAVSQVVHKAVALDVFEEGTEASAATAVKITRRSIDVETRTIVRF
NRPFLMIIVPTDTQNIFFMSKVTPKQA*

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FIG. 7C

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 83**SEQ ID N°5**

*ATG*GAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACCTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCCTGTCTCTGGGGGCCATAATACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCAGCACCTCCTGCGCACCCCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCTGCTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGGAAG
CCATGCTGCTCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTGAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCAGGGGGA~~GATCTGAGTTAGTGGAGACGCGTACCATTGTGCGTTTC~~
AACAGGCCCTTCCTGATGATCATTTGTCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variant : MD 83**SEQ ID N°6**

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNNTLLEILKGLKFNLTETSEAEIHQS FQHLLRTL NQSSDELQLSMGN
AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKN GTRGKITDLIKDLDSQT
MMVLVNYIFFKAKWEMPFPDQDTHQSRFYLSKKKWVMPMMSLHHLTIPYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISR DYNLNDILLQL
GIEEAFTSKADLSGITGARNLAVSQVVHKAVLDVFEEGTEASAATAVKIRGRSELVETRTRIVRF
NRPFLMIIVPTDTQNIFFMSKVTNPKQA*

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FIG. 7D

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 67

SEQ ID N°7

*ATG*GAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACTTGACGAGGAGA
ATCTGACCCAGGAGAAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCATGAGCATCTCCACCGCCTTGGCCTTCTGTCTCTGGGGGCCCATATAACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCAGCACCTCCTGCGCACCCCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCCTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGGAAG
CCATGCTGCTCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCAAGCTTAGAACCAACATTAGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCTCTGATGATCATTTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variant: MD 67

SEQ ID N°8

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGAHNNTTLTEILKGLKFNLTETSEAEIHQS FQHLLRTL NQSSDELQLSMGN
AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNNGTRGKITDLIKDLDSQT
MMVLVNYIFFKAKWEMPFPDQDTHQSRFYLSKKKWVMPMMSLHHLTIPYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISR DYNLNDILLQL
GIEEFTSKADLSGITGARNLAVSQVVHKAVLDVFEEGTEASAATAVKIKLRTTLVETRTRIVRF
NRPF LMIIVPTDTQNIFFMSKVTPNQQA*

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variant : MD 61

SEQ ID N°9

ATGAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACCTTGACGAGGAGA
ATCTGACCCAGGAGCAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCTGTCTCTGGGGGCCCATATAACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGGCAACTCAGTCTGCTGGACAGGTTACCGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCTTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTTGACCCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTTTCATCTCCCTGATCAAGACAAGATGGAGGAAGTGGAAG
CCATGCTGCTCCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCATGACAAGATCTAACGCAGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variant : MD 61

SEQ ID N°10

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLSLGAHNTTLTEILKGLKFNLTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNNGTRGKITDLIKDLSQT
MMVLVNYIFFKAKWEMPFDPDQTHQSRFYLSKKKWVMPMMSLHHLTIPYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDYNLNDILLQL
GIEEFTSKADLSGITGARNLAVSQVVHKAVLDVFEEGTEASAATAVKIMTRSNAVETRTIVRF
NRPFMLMIVPTDTQNIFFMSKVTPKQA*

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FIG. 7F

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variants : MD 518**SEQ ID N°11**

*ATG*GAGAGGATCCCATCACCATCACCATC**ACT**CTAGACACCCTAACAGCCCACTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGGCCTTCCTGTCTCTGGGGGCCCATATAACCACCCTGA
CAGAGATTCTCAAAGGCCCTCAAGTTC AACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCCCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCCTTGGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCCTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGTCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGGAAG
CCATGCTGCTCCCAGAGACCCCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAAATCACCGAGCGTGTCTCGCCCGTGGAGACCGCGTACCATTGTGCGTTTC
AACAGGCCCTTCCTGATGATCATTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variants: MD 518**SEQ ID N°12**

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLGHNNTTLTEILKGLKFNLTTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNNGTRGKITDLIKDLSQT
MMVLVNYIFFKAKWEMPFPDQDTHQSRFYLSKKKWVMPMMSLHHLTI PYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDILLQL
GIEEAFTSKADLSGITGARNLAVSQVVHKAVLVDVFEEGTEASAATAVKITERVSVETRTIVRF
NRPFLLMIIVPTDTQNIFFMSKVTNPKQA*

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FIG. 7G

Italic : start codon ATG

Bold : His-tag

Underlined : DNA sequence different to ACTwt sequence

Underlined and grey : DNA sequence encoding RSL mutation.

DNA Sequence ACT variants : MDCI

SEQ ID N°13

*ATG*GAGAGGATCCCATCACCATCACCATCACTCTAGACACCCTAACAGCCCACTTGACGAGGAGA
ATCTGACCCAGGAGAACCAAGACCGAGGGACACACGTGGACCTCGGATTAGCCTCCGCCAACGT
GGACTTCGCTTTCAGCCTGTACAAGCAGTTAGTCCTGAAGGCCCTGATAAGAATGTCATCTTC
TCCCCACTGAGCATCTCCACCGCCTTGCGCTTCCTGTCTCTGGGGGCCATAATACCACCCTGA
CAGAGATTCTCAAAGGCCTCAAGTTCAACCTCACGGAGACTTCTGAGGCAGAAATTCACCAGAG
CTTCCAGCACCTCCTGCGCACCTCAATCAGTCCAGCGATGAGCTGCAGCTGAGTATGGGAAAT
GCCATGTTTGTCAAAGAGCAACTCAGTCTGCTGGACAGGTTACGGAGGATGCCAAGAGGCTGT
ATGGCTCCGAGGCCTTTGCCACTGACTTTCAGGACTCAGCTGCAGCTAAGAAGCTCATCAACGA
CTACGTGAAGAATGGAAGTAGGGGGAAAATCACAGATCTGATCAAGGACCTTGACTCGCAGACA
ATGATGGTCCTGGTGAATTACATCTTCTTTAAAGCCAAATGGGAGATGCCCTTTGACCCCAAG
ATACTCATCAGTCAAGGTTCTACTTGAGCAAGAAAAAGTGGGTAATGGTGCCCATGATGAGTTT
GCATCACCTGACTATACCTTACTTCCGGGACGAGGAGCTGTCTGCACCGTGGTGGAGCTGAAG
TACACAGGCAATGCCAGCGCACTCTTCATCCTCCCTGATCAAGACAAGATGGAGGAAGTGGAAG
CCATGCTGCTCCCAGAGACCCTGAAGCGGTGGAGAGACTCTCTGGAGTTCAGAGAGATAGGTGA
GCTCTACCTGCCAAAGTTTTCCATCTCGAGGGACTATAACCTGAACGACATACTTCTCCAGCTG
GGCATTGAGGAAGCCTTCACCAGCAAGGCTGACCTGTCAGGGATCACAGGGGCCAGGAACCTAG
CAGTCTCCCAGGTGGTCCATAAGGCTGTGCTTGATGTATTTGAGGAGGGCACAGAAGCATCTGC
TGCCACCGCGGTCAAATCACCTTTAGATCTGCATTAGTGGAGACGCGTACCATTGTGCGTTTC
AACAGGCCCTTCTGATGATCATTTGTCCCTACAGACACCCAGAACATCTTCTTCATGAGCAAAG
TCACCAATCCCAAGCAAGCCTAA

Protein Sequence ACT variants: MD CI

SEQ ID N°14

MRGSHHHHHHSRHPNSPLDEENLTQENQDRGTHVDLGLASANVDFAFSLYKQLVLKAPDKNVIF
SPLSISTALAFSLSLGAHNNTTLTEILKGLKFNLTTETSEAEIHQSFOHLLRTLNQSSDELQLSMGN
AMFVKEQLSLLDRFTEDAKRLYGSEAFATDFQDSAAAKKLINDYVKNNGTRGKITDLIKDLDSQT
MMVLVNYIIFKAKWEMPFDPDTHQSRFYLSKKKWVMPMMSLHHLTIPIYFRDEELSCTVVELK
YTGNASALFILPDQDKMEEVEAMLLPETLKRWRDSLEFREIGELYLPKFSISRDNLDILLQL
GIEEAFTSKADLSGITGARNLAVSQVVKAVLDVFEEGTEASAATAVKITFRSALVETRTIVRF
NRPFLMIIVPTDTQNIFFMSKVTNPKQA*

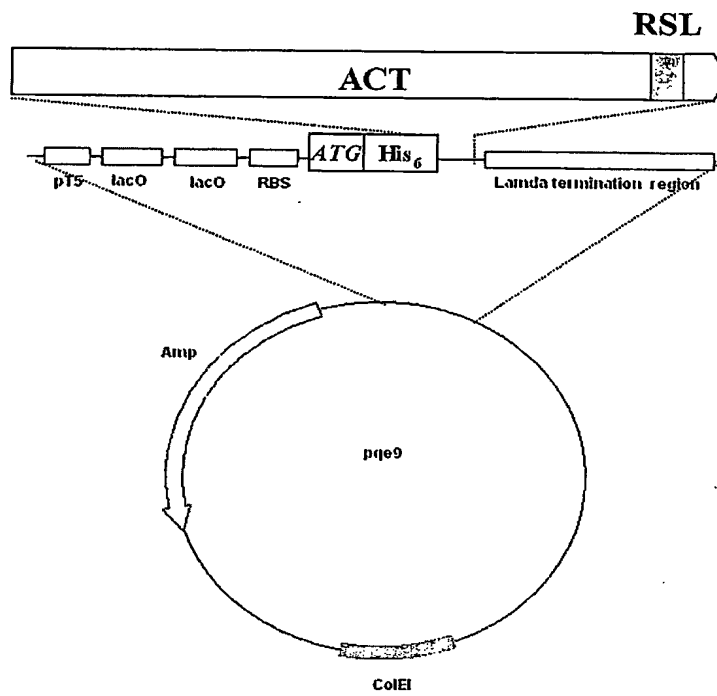
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FIG. 8

<i>Serpin</i>	<i>Sequences</i>	<i>P6</i>	<i>P5</i>	<i>P4</i>	<i>P3</i>	<i>P2</i>	<i>P1</i>	<i>P'1</i>	<i>P'2</i>	<i>P'3</i>	<i>P'4</i>	<i>P'5</i>
ACT_{WT}	Protein (a.a)	V	K	I	T	L	L*	S	A	L	V	E
	SEQ ID N° 15											
	DNA (codon)	GTC	AAA	ATC	ACC	CTC	CTT	TCT	GCA	TTA	GTG	GAG
MD820	Protein (a.a)	V	K	I	T	L	<u>R</u> *	S	<u>R</u>	<u>A</u>	V	E
	SEQ ID N° 16											
	DNA (codon)	GTC	AAA	ATC	ACC	CTC	<u>CGT</u>	TCT	<u>CGA</u>	<u>GCA</u>	GTG	GAG
MD62	Protein (a.a)	V	K	I	T	<u>R</u>	<u>R</u> *	S	<u>I</u>	<u>D</u>	V	E
	SEQ ID N° 17											
	DNA (codon)	GTC	AAA	ATC	ACC	<u>AGG</u>	<u>AGG</u>	TCT	<u>ATC</u>	<u>GAT</u>	GTG	GAG
MD83	Protein (a.a)	V	K	I	<u>R</u>	<u>G</u>	<u>R</u> *	S	<u>E</u>	L	V	E
	SEQ ID N° 18											
	DNA (codon)	GTC	AAA	ATC	<u>AGG</u>	<u>GGG</u>	<u>AGA</u>	TCT	<u>GAG</u>	TTA	GTG	GAG
MD67	Protein (a.a)	V	K	I	<u>K</u>	L	<u>R</u> *	<u>I</u>	<u>I</u>	L	V	E
	SEQ ID N° 19											
	DNA (codon)	GTC	AAA	ATC	<u>AAG</u>	<u>CTI</u>	<u>AGA</u>	<u>ACA</u>	<u>ACA</u>	TTA	GTG	GAG
MD61	Protein (a.a)	V	K	I	<u>M</u>	<u>I</u>	<u>R</u> *	S	<u>N</u>	<u>A</u>	V	E
	SEQ ID N° 20											
	DNA (codon)	GTC	AAA	ATC	<u>ATG</u>	<u>ACA</u>	<u>AGA</u>	TCT	<u>AAC</u>	<u>GCA</u>	GTG	GAG
MD518	Protein (a.a)	V	K	I	T	<u>E</u>	<u>R</u> *	<u>V</u>	<u>S</u>	<u>P</u>	V	E
	SEQ ID N° 21											
	DNA (codon)	GTC	AAA	ATC	ACC	<u>GAG</u>	<u>CGT</u>	<u>GTC</u>	<u>ICG</u>	<u>CCC</u>	GTG	GAG
MDCI	Protein (a.a)	V	K	I	T	<u>E</u>	<u>R</u> *	S	A	L	V	E
	SEQ ID N° 22											
	DNA (codon)	GTC	AAA	ATC	ACC	<u>ITI</u>	<u>AGA</u>	TCT	GCA	TTA	GTG	GAG

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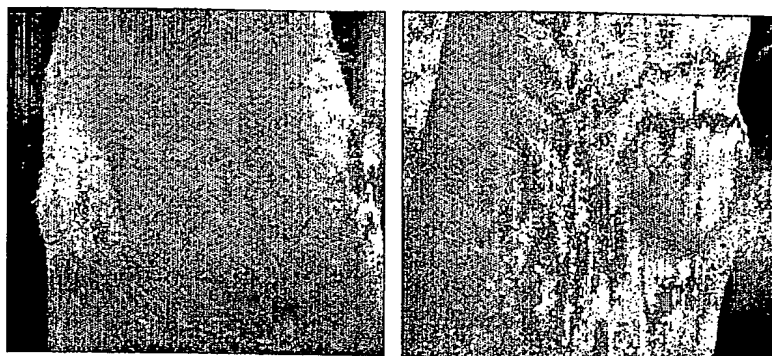
FIG. 9



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FIG. 10 A

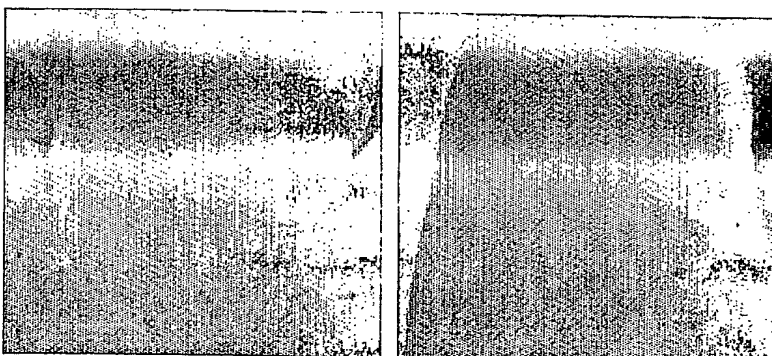
Control



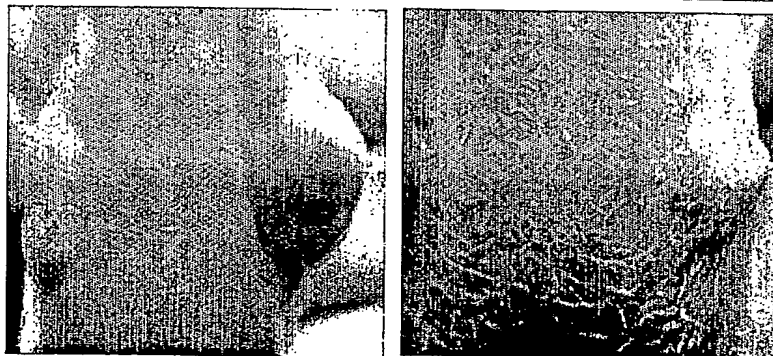
ACT-WT (50ug)



MD 62 (25ug)



MD 62 (5ug)



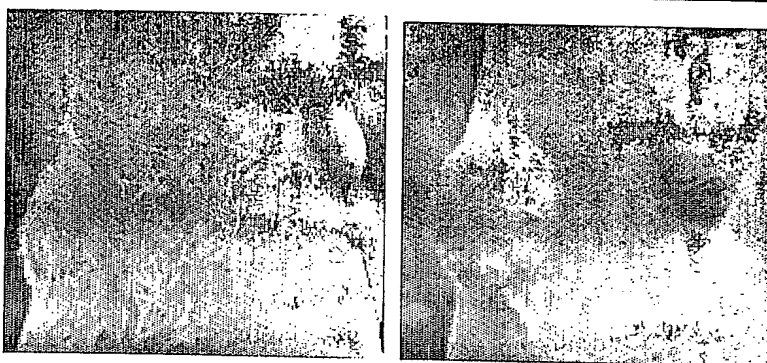
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FIG. 10 B

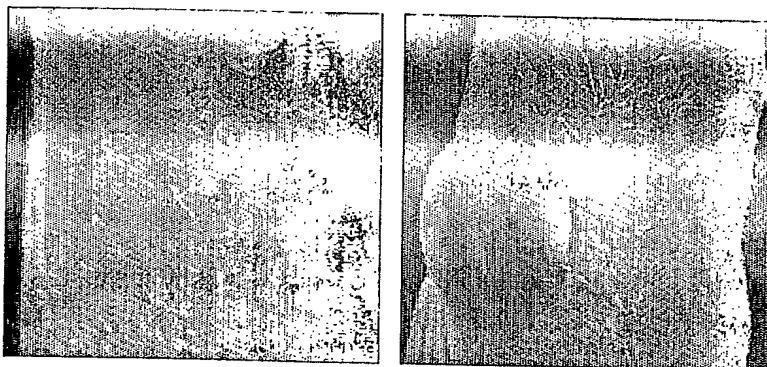
Control



ACT-WT (50ug)



MD 67 (25ug)



MD 67 (5ug)

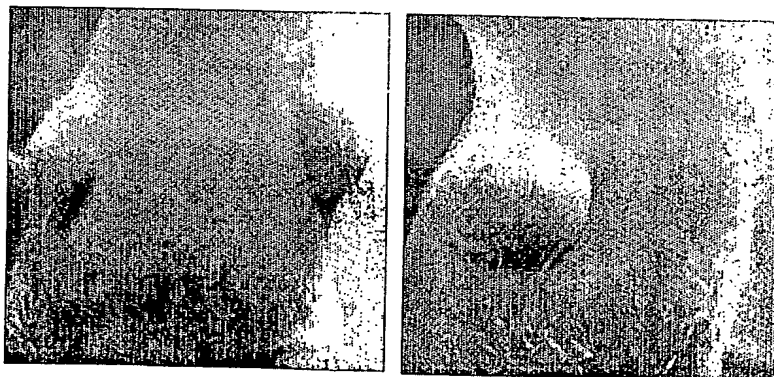
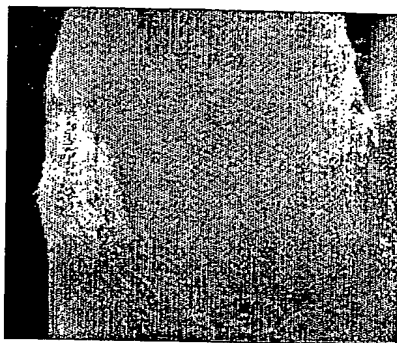
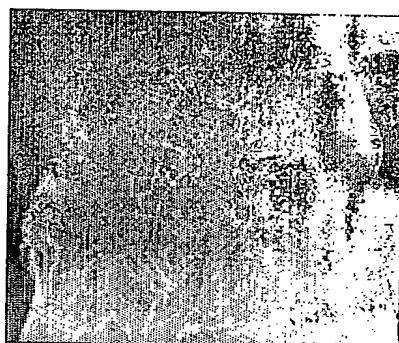


FIG. 11

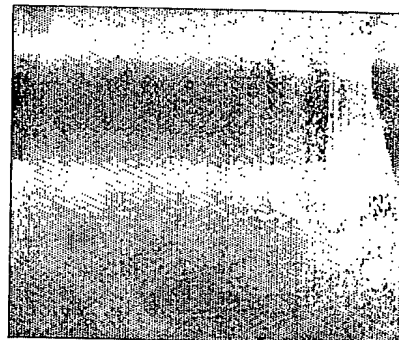
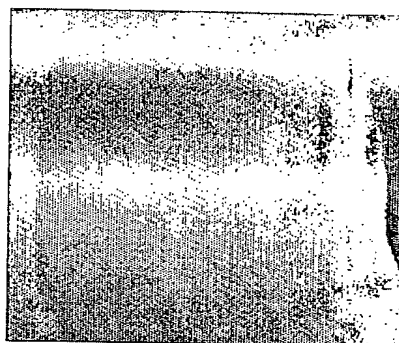
Control



ACT-WT (50ug)



MD CI (50ug)



MD CI (5ug)

